REMARKS

Claims 5 – 9 and 21 – 30 are pending in the present application. Claims 1 – 4 and 10 – 20 have been cancelled and new claims 21 – 30 have been added. Claims 5 – 9 have been amended. The specification has also been amended to correct inadvertent typographical errors. The Examiner's rejections are discussed below in the order originally presented.

Claims 10 – 17 stand rejected under 35 U.S.C. § 112.

Claims 10 – 17 stand rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. Claims 10 – 17 have bee cancelled rendering this rejection moot. Further, the objected to language is not found in any of the presently pending claims. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 1, 3 – 7, and 9 stand rejected under 35 U.S.C. § 102(a) or (b) as being allegedly anticipated by Yamaguchi et al.

Claims 1, 3 – 7, and 9 stand rejected under 35 U.S.C. § 102(a) or (b) as being allegedly anticipated by Yamaguchi et al. Claims 1, 3, and 4 have been cancelled. Claims 5, 6, and 7 have been amended to depend from claim 8 (which now depends from new independent claim 21). Claim 9 has been amended to depend indirectly from new independent claim 21.

The subject matter of claim 21 is fully supported in U.S. Provisional Application No. 60/328,996 filed October 12, 2001, see Figures 1 and 2 thereof. By way of example only, claim 21 recites:

> A system for providing back-up power to a load *(load 36)* powered by a primary power source *(primary power source 32)*, the system comprising:

a fuel cell arrangement for generating back-up power for the load *(fuel cell 34)*;

a bridging power source for generating bridge power for the load *(bridging apparatus 46)*; and

a controller *(controller 44)* in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load.

Yamaguchi et al. has a publication date of September 28, 2001 whereby it is being applied under 35 U.S.C. § 102(a). A Declaration of Prior Invention under 37 C.F.R. § 1.131 is filed herewith evidencing prior invention, rendering this rejection moot.

In view of the foregoing, applicants submit that claims 5, 6, 7, and 9 are allowable as depending from what should now be an allowable independent claim 21. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

Claims 1, 2, 5 – 7, and 9 stand rejected under 35 U.S.C. § 102(a) as being allegedly anticipated by Takeuchi.

Claims 1, 2, 5 – 7, and 9 stand rejected under 35 U.S.C. § 102(a) as being allegedly anticipated by Takeuchi (Takeuchi's publication date is March 15, 2002). Claims 1 and 2 have been cancelled. Claims 5, 6, and 7 have been amended to depend from claim 8 (which now depends from new independent claim 21). Claim 9 has been amended to depend indirectly from new independent claim 21. However, Takeuchi is not prior art to new independent claim 21, as all the elements recited in claim 21 are

supported in U.S. Provisional Application No. 60/328,996 filed October 12, 2001, see Figures 1 and 2 thereof. By way of example only, claim 21 recites:

> A system for providing back-up power to a load *(load 36)* powered by a primary power source *(primary power source 32)*, the system comprising:
>
> a fuel cell arrangement for generating back-up power for the load *(fuel cell 34)*;
>
> a bridging power source for generating bridge power for the load *(bridging apparatus 46)*; and
>
> a controller *(controller 44)* in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load.

In view of the foregoing, applicants submit that claims 5, 6, 7, and 9 are allowable as depending from what should now be an allowable independent claim 21. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

<u>Claims 1, 3, 5 – 7, and 9 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Hibbs et al.</u>

Claims 1, 3 – 7, and 9 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Hibbs et al. Claims 1, 3, and 4 have been cancelled. Claims 5, 6, and 7 have been amended to depend from claim 8 (which now depends from new independent claim 21). Claim 8 has not been rejected over Hibbs et al., as use of a capacitor for a back-up power source is not taught. Accordingly, claims 5, 6, and 7 are also not anticipated by Hibbs et al. as depending from claim 8. Claim 9 has been amended to depend indirectly from new independent claim 21. Claim 21 recites:

A system for providing back-up power to a load powered by a primary power source, the system comprising:

a fuel cell arrangement for generating back-up power for the load;

a bridging power source for generating bridge power for the load; and

a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load.

, emphasis added.

Hibbs et al. teaches a solar array connected to a power bus for proving power to motors (loads), see Figure 11. Hibbs et al. states:

> … if any one of the solar array 113 becomes deficient, an engine may obtain its power from the other solar arrays, or from the batteries. The battery pods 117 are illustrated in Fig. 4 as well, one for each of the three middle sections of the aircraft. The vertical fins 103 may hold either a panel of ***rechargeable batteries, <u>or</u> carry an electrolysis device that supplies electricity stored in the form of hydrogen and oxygen gases***. The use of rechargeable batteries is preferable …

, col. 10, l. 5 – 17, emphasis added. Hibbs et al. further states:

> "as alluded to previously, ***the energy storage system 119 can either be a regenerative fuel cell 104 <u>or</u> a standard rechargeable battery 275, such as a rechargeable battery***. The relative configurations of these systems is respectfully illustrated by a comparison of FIG. 11 with FIGS. 4. The latter figure illustrates the mounting of individual batteries 275 within each vertical fin of the aircraft. This embodiment is preferred for use, for example, where the aircraft's night duty is short. For example, as mentioned above, in a hypothetical application where the solar rechargeable aircraft 101 is called upon to provide summer duty as a radio relay over one of the great lakes, rechargeable batteries are the most practical, since they impose the least weight requirements on the aircraft. On the other hand, since the water regenerative fuel cell 104 provides greater electrical storage capacity, it is preferred for use in conditions where nights are longer and the additional weight can be tolerated.

> As described earlier, the regenerative fuel cell 104 requires use of a combination fuel cell/electrolyzer, pumps and compressors, a water tank and regulating valves, all of which are mounted in the upper portion of each of the battery pods 117, within the wing (FIGS. 5B and 5C).
>
> Selection of particular batteries to be used and the number of batteries varies with the particular application, and is well within the skill of one familiar with battery and power supply applications.

, col. 16, l. 13 – 39, emphasis added.

Hibbs et al. uses the batteries <u>or</u> the fuel cell as a source of power, when the solar cells do not provide sufficient power. Hibbs et al. does not teach or suggest use of both, and more specifically use of the battery for providing bridge power and the fuel cell for providing back-up power.

Accordingly, Hibbs et al. fails to teach or suggest (1) "a bridging power source for generating bridge power for the load" and (2) "a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load". More specifically, Hibbs et al. is devoid of any teaching in or suggestion of any type of "bridging power source". The present invention as recited by claim 21 generates back-up power <u>and</u> bridge power, in addition to the primary power. The bridge power is used to provide power while the fuel cell comes on-line, when there is a deterioration of the power from the primary power source. Hibbs et al. does not teach or suggest a controller for applying bridge power and back-up power as such are not utilized therein.

Further, the Examiner's reliance on the electrolyzer as a bridging power source is misplaced. Hibbs et al. does not teach or even remotely suggest that the electrolyzer could be used in any way as a power source. The electrolyzer of Hibbs et al. receives power and generates hydrogen, it is not configure to provide power. Turning to the present application, paragraphs 50 – 52, it states:

Continuing with Figure 2, ***the electrical input to the electrolysis cell 62 may be disconnected from the primary bus 40 of primary power source 32 and/or the optional power converter 61 and instead connected as an output to supply electrical power as depicted via line 63. During bridging, the electrolysis cell 62 may be employed to generate electricity by utilizing the hydrogen remaining within the electrolysis cell 62 to generate and supply bridging power to feeder bus 38 (via controller/power supply 44). Depending upon the amount of hydrogen available within the electrolysis cell 62, electricity may be supplied for the duration of the above mentioned power interruption between loss of the primary power source 32 and the generation of power from the secondary power source 100, more specifically fuel cell 34.*** In an exemplary embodiment, an electrolysis cell 62 may supply about 30 watts decaying to about 1 watt of power over about 10 minutes.

In an exemplary embodiment, ***the electrolysis cell 62 is operably connected to controller/DC-DC power supply 44 in a manner to facilitate the electrolysis cell 62 supplying current to controller/DC-DC power supply 44. When the electrolysis cell 62 is used to bridge the gap in power between a switch-over from primary power source 32 to the secondary source 100, the controller/DC-DC power supply 44 may optionally be employed to convert the voltage from the voltage level output by the electrolysis cell 62 to the voltage level of the feeder bus 38. Preferably, power is supplied by electrolysis cell 62 for the period of time from a cease in the power supply from primary power source 32 until commencement of power supply from the secondary power source 100 (i.e., when the fuel cell 34 attains operating conditions and begins to supply a predetermined amount of power).*** Otherwise the electrolysis cell 62 may, as described earlier be supplemented with a capacitor 48 and/or battery 49. It will be appreciated, that employing the electrolysis cell 62 in this manner will facilitate elimination of the capacitor 48 and/or battery 49 from the power system 10. Alternatively, the size of the capacitor 48 and/or battery 49 may be reduced because of the net increase in bridge power available with the electrolysis cell 62. Finally, the addition of the electrolysis cell 62 to the bridging power source 46a may result in reduced maintenance and replacement for storage components such as the capacitor 48 and/or battery 49.

During a normal mode of operation, in this embodiment, the power supplied from primary power source 32 (e.g., 120/240 VAC if an AC source) on primary bus 40 is converted (in the depicted configuration) to a DC voltage by rectifier 43 of conversion device 42. The load 36 draws current from feeder bus 38, regardless of the source of the power thereto. During the normal mode, bridging power source 46a maintains stored electrical energy in the event of a temporary power interruption, while the electrolysis cell 62 is operatively configured to receive electrical power and generate hydrogen for storage if needed. Moreover, preferably, the electrolysis cell 62 has fully filled the

> hydrogen storage device 64 and therefore the electrolysis cell 62 is idle but configured to provide an electrical output to controller/DC-DC power supply 44 and thereby the feeder bus 38. It will be further appreciated that the electrical connection and configuration could be arranged such that the electrolysis cell 62 supplies only a subset of the full load on the feeder bus 38. For example, the load of the feeder bus 38 may be logically partitioned as needed to support various priority loading schemes. Moreover, the load may be further partitioned in consideration of the available backup or bridging power available. For example, the load partition could be modified as backup power storage capability is diminished, providing additional protection for the critical system components and interfaces, such as system controllers, monitors, or watchdog circuits.

, emphasis added. According, while the both the present invention and Hibbs et al. teach an electrolyzer for electrolysis generation of hydrogen, only the present invention teaches a method of providing power ***from*** the electrolyzer. For at least these reasons the Examiner's reliance on the electrolyzer of Hibbs et al. as a power source, bridge or otherwise, is misplaced.

In view of the foregoing, applicants submit that claims 5, 6, 7, and 9 are allowable as depending from what should now be an allowable independent claim 21. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

Claims 1, 3, 5 – 7, and 9 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Oki et al.

Claims 1, 3, 5 – 7, and 9 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Oki et al. Claims 1 and 3 have been cancelled. Claims 5, 6, and 7 have been amended to depend from claim 8 (which now depends from new independent claim 21). Claim 8 has not been rejected over Oki et al., as use of a capacitor for a back-up power source is not taught. Accordingly, claims 5, 6, and 7 are also not anticipated by Oki et al. as depending from claim 8. Claim 9 has been amended to depend indirectly from new independent claim 21. Claim 21 recites:

> A system for providing ***back-up power to a load powered by a primary power source***, the system comprising:
>
> ***a fuel cell arrangement for generating back-up power for the load***;
>
> ***a bridging power source for generating bridge power for the load***; and
>
> ***a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load.***

, emphasis added.

Oki et al. teaches a car 30 with an on-board electronic power generation device 3, which provides power to a load 13. A fuel cell 11 also provides power to the load 13 during periods of high demand. The fuel cell 11 generates electrical power from hydrogen and oxygen stored in a device 10. A water electrolysis device 9 generates the hydrogen and oxygen that is stored in device 10, from stored water. The water electrolysis device 9 is powered by excess power from the on-board generation device 3 during use of the car or by an external source during non-use of the car (a type of charging of the regenerative fuel cell).

Accordingly, Oki et al. fails to teach or suggest (1) "a bridging power source for generating bridge power for the load" and (2) "a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load". More specifically, Oki et al. is devoid of any teaching in or suggestion of any type of "bridging power source". The present invention as recited by claim 21 generates back-up power <u>and</u> bridge power, in addition to the primary power.

The bridge power is used to provide power while the fuel cell comes on-line, when there is a deterioration of the power from the primary power source. Oki et al. does not teach or suggest a controller for applying bridge power and back-up power as such are not utilized therein.

Further, the Examiner's reliance on the water electrolysis device as a bridging power source is misplaced. Oki et al. does not teach or even remotely suggest that the water electrolysis device could be used in any way as a power source. The water electrolysis device of Oki et al. receives power and generates hydrogen, it is not configure to provide power. Turning to the present application, paragraphs 50 – 52, it states:

> Continuing with Figure 2, ***the electrical input to the electrolysis cell 62 may be disconnected from the primary bus 40 of primary power source 32 and/or the optional power converter 61 and instead connected as an output to supply electrical power as depicted via line 63. During bridging, the electrolysis cell 62 may be employed to generate electricity by utilizing the hydrogen remaining within the electrolysis cell 62 to generate and supply bridging power to feeder bus 38 (via controller/power supply 44). Depending upon the amount of hydrogen available within the electrolysis cell 62, electricity may be supplied for the duration of the above mentioned power interruption between loss of the primary power source 32 and the generation of power from the secondary power source 100, more specifically fuel cell 34.*** In an exemplary embodiment, an electrolysis cell 62 may supply about 30 watts decaying to about 1 watt of power over about 10 minutes.
>
> In an exemplary embodiment, ***the electrolysis cell 62 is operably connected to controller/DC-DC power supply 44 in a manner to facilitate the electrolysis cell 62 supplying current to controller/DC-DC power supply 44. When the electrolysis cell 62 is used to bridge the gap in power between a switch-over from primary power source 32 to the secondary source 100, the controller/DC-DC power supply 44 may optionally be employed to convert the voltage from the voltage level output by the electrolysis cell 62 to the voltage level of the feeder bus 38. Preferably, power is supplied by electrolysis cell 62 for the period of time from a cease in the power supply from primary power source 32 until commencement of power supply from the secondary power source 100 (i.e., when the fuel cell 34 attains operating conditions and begins to supply a predetermined amount of power)***. Otherwise the electrolysis cell 62 may, as described earlier be supplemented with a capacitor 48 and/or battery 49. It will be appreciated, that employing the electrolysis cell 62 in this manner will facilitate elimination of the capacitor 48 and/or battery 49 from the power system

10. Alternatively, the size of the capacitor 48 and/or battery 49 may be reduced because of the net increase in bridge power available with the electrolysis cell 62. Finally, the addition of the electrolysis cell 62 to the bridging power source 46a may result in reduced maintenance and replacement for storage components such as the capacitor 48 and/or battery 49.

> During a normal mode of operation, in this embodiment, the power supplied from primary power source 32 (e.g., 120/240 VAC if an AC source) on primary bus 40 is converted (in the depicted configuration) to a DC voltage by rectifier 43 of conversion device 42. The load 36 draws current from feeder bus 38, regardless of the source of the power thereto. During the normal mode, bridging power source 46a maintains stored electrical energy in the event of a temporary power interruption, while the electrolysis cell 62 is operatively configured to receive electrical power and generate hydrogen for storage if needed. Moreover, preferably, the electrolysis cell 62 has fully filled the hydrogen storage device 64 and therefore the electrolysis cell 62 is idle but configured to provide an electrical output to controller/DC-DC power supply 44 and thereby the feeder bus 38. It will be further appreciated that the electrical connection and configuration could be arranged such that the electrolysis cell 62 supplies only a subset of the full load on the feeder bus 38. For example, the load of the feeder bus 38 may be logically partitioned as needed to support various priority loading schemes. Moreover, the load may be further partitioned in consideration of the available backup or bridging power available. For example, the load partition could be modified as backup power storage capability is diminished, providing additional protection for the critical system components and interfaces, such as system controllers, monitors, or watchdog circuits.

, emphasis added. According, while the both the present invention and Oki et al. teach an water electrolysis device for electrolysis generation of hydrogen, only the present invention teaches a method of providing power ***from*** the water electrolysis device. For at least these reasons the Examiner's reliance on the water electrolysis device of Oki et al. as a power source, bridge or otherwise, is misplaced.

In view of the foregoing, applicants submit that claims 5, 6, 7, and 9 are allowable as depending from what should now be an allowable independent claim 21. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

<u>Claims 1, 2, 5 – 7, and 9 stand rejected under 35 U.S.C. § 102(a) or (b) as being allegedly anticipated by Routtenberg.</u>

Claims 1, 2, 5 – 7, and 9 stand rejected under 35 U.S.C. § 102(a) or (b) as being allegedly anticipated by Routtenberg. Claims 1 and 2 have been cancelled. Claims 5, 6, and 7 have been amended to depend from claim 8 (which now depends from new independent claim 21). Claim 9 has been amended to depend indirectly from new independent claim 21.

The subject matter of claim 21 is fully supported in U.S. Provisional Application No. 60/328,996 filed October 12, 2001, see Figures 1 and 2 thereof. By way of example only, claim 21 recites:

> A system for providing back-up power to a load *(load 36)* powered by a primary power source *(primary power source 32)*, the system comprising:
>
> a fuel cell arrangement for generating back-up power for the load *(fuel cell 34)*;
>
> a bridging power source for generating bridge power for the load *(bridging apparatus 46)*; and
>
> a controller *(controller 44)* in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load.

Routtenberg has a publication date of April 19, 2001 whereby it is being applied under 35 U.S.C. § 102(a). A Declaration of Prior Invention under 37 C.F.R. § 1.131 is filed herewith evidencing prior invention, rendering this rejection moot.

In view of the foregoing, applicants submit that claims 5, 6, 7, and 9 are allowable as depending from what should now be an allowable independent claim 21. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

Claims 1, 2, and 8 stand rejected under 35 U.S.C. § 102(a), (b), and (e) as being allegedly anticipated by Jungreis.

Claims 1, 2, and 8 stand rejected under 35 U.S.C. § 102(a), (b), and (e) as being allegedly anticipated by Jungreis. Claims 1 and 2 have been cancelled. Claim 8 has been amended to depend from claim 8 (which now depends from new independent claim 21). Claim 21 recites:

> A system for providing back-up power to a load powered by a primary power source, the system comprising:
>
> a fuel cell arrangement for generating back-up power for the load;
>
> ***a bridging power source for generating bridge power for the load***; and
>
> ***a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load.***

, emphasis added.

Jungreis teaches:

> ... [an uninterruptible power supply (UPS)] having at least one uncontrolled rectifier connecting an ac power source of one or more phases to a dc bus, and in inverter that converts the power from the dc bus to an ac voltage with one or more phases. In a presently preferred form, the invention also includes one or more ac and/or dc power sources connected to the dc bus such that the ac power source(s) is connected to the dc bus via an uncontrolled rectifier

> and the dc source(s) is connected to the dc bus either directly or through a dc-to-dc converter. In this example, the dc-to-dc converter is unidirectional when the dc source does not need to receive any power and bi-directional if the dc source needs to receive current from the dc bus for purposes of charging, such as would be the case for a battery or capacitor. The other power sources include but are not limited to: other utility supplies which have been transformed to the same or nearly the same voltage as the main ac supply; auxiliary generators operating at voltages nearly the same as the main ac supply; auxiliary generators with appropriate voltage transformation to operate at the same or nearly the same voltage as the main ac supply; microturbines connected to high speed generators with or without voltage transformers on the output as appropriate to provide the proper voltage amplitude to the dc bus; flywheel energy storage systems; a battery or batteries; capacitors; solar cells; and/or fuel cells.

, col 4, l. 25 – 50. Referring also to Figures 3 and 4 of Jungreis, the main power supply 10 is backed up by multiple other supplies 16, 18, 20. DC supply 16 may alternatively be a fuel cell, col. 3, l. 62 – 65 of Jungreis, as cited by the Examiner. Jungreis teaches that all of these power source are connected to the load the UPS, and are selectively applied by any type of controller. Jungreis does not teach that one of these power sources would in any way serve as a source of bridge power for the other supply as they are all always applied.

Accordingly, Jungreis fails to teach or suggest (1) "a bridging power source for generating bridge power for the load" and (2) "a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load". More specifically, Jungreis is devoid of any teaching in or suggestion of any type of "bridging power source". The present invention as recited by claim 21 generates back-up power <u>and</u> bridge power, in addition to the primary power. The bridge power is used to provide power while the fuel cell comes on-line, when there is a deterioration of the power from the primary power source. Jungreis does not require bridging power because the others sources are always applied. Jungreis does not teach or

suggest a controller for applying bridge power and back-up power as such are not utilized therein.

In view of the foregoing, applicants submit that claim 8 is allowable as depending from what should now be an allowable independent claim 21. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Schell.

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Schell. Claim 1 has been cancelled rendering this rejection moot. Accordingly, withdrawal of this rejection is respectfully requested.

New claim 21 has been added and is discussed below. Claim 21 recites:

> A system for providing back-up power to a load powered by a primary power source, the system comprising:
>
> a fuel cell arrangement for generating back-up power for the load;
>
> ***a bridging power source for generating bridge power for the load***; and
>
> ***a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load.***

, emphasis added.

Schell teaches a fuel cell 1 that is to activated independently of the engine of a vehicle, the vehicle including a battery 3 and a generator 4. When to engine is off, the generator 4 is not used (col. 2, l. 35 – 41), whereby "[w]hen the driver switches on the

consuming device 2, the voltage of the motor vehicle battery 3 will be reduced with an increasing discharge; and when it falls below an adjusted voltage limit, the fuel cell unit 1 is activated by a control unit 6, to supply electric power" (col. 2, l. 42 – 46). Further, "[w]hen the fuel cell unit is switched on, it builds up its voltage an takes over the load to a maximum possible power output, only when the actual battery voltage is exceeded. If the load of the switched-on consuming device 2 is lower than the maximum possible fuel cell unit output, the battery 3 is recharged simultaneously ..." (col. 2, l. 47 – 56). "To protect the battery from damage by overcharging, the fuel cell unit is switched off by the control unit 6 when an upper voltage limit has been reached." (col. 2, l. 64 – 67). Still further, the fuel cell unit 1 may supplement the battery – generator system, also when the engine is running, col. 3, l. 23 – 30. Accordingly, it is the battery voltage level that is monitored to determine when to turn on and off the fuel cell, which supplements the batter power to the load. The fuel cell is not turned on or off with respect to a generator voltage.

Accordingly, Schell fails to teach or suggest (1) "a bridging power source for generating bridge power for the load" and (2) "a controller in operable communication with the fuel cell arrangement and the bridging power source, the controller adapted to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, the controller further adapted to initiate application of the back-up power to the load upon detecting a power capability of the back-up power to power the load". More specifically, Schell is devoid of any teaching in or suggestion of any type of "bridging power source". The present invention as recited by claim 21 generates back-up power <u>and</u> bridge power, in addition to the primary power. The bridge power is used to provide power while the fuel cell comes on-line, when there is a deterioration of the power from the primary power source. Schell battery power is not bridging power because it does not bridge power between the generator's deterioration of power and the power up of the fuel cell. Further, Schell does not teach or suggest a controller to initiate application of the bridge power to the load upon detecting a deterioration of power from the primary power source, and to initiate application of the

back-up power to the load upon detecting a power capability of the back-up power to power the load. More specifically, the condition of the back-up power from the fuel cell is not a concern of Schell. "An electronic power system for controlling the fuel cell unit for voltage adaptation is therefore not necessary.", col. 3, l. 10 – 12 of Schell. Schell does not apply the fuel cell power upon detecting a power capability thereof; rather it applies the fuel cell power solely based on a need for additional power of the battery.

In view of the foregoing, applicants submit, although not presently the subject of a rejection in view of Schell, that claim 21 is allowable.

Claims 5 – 7 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Jungreis.

Claims 5 – 7 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Jungreis. Claims 5 – 7 have been amended to depend from claim 8 (which now depends from new independent claim 21). Claim 21 should be allowable for the reasons discussed hereinabove with respect to Jungreis, whereby claims 5 – 7 should also be allowable as depending from what should now be an allowable independent claim. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

Claims 1 – 20 stand rejected under the judicially created doctrine of obviousness-type double patenting as being obvious over claims 1 – 24 of copending Application No. 10/065,386.

Claims 1 – 20 stand rejected under the judicially created doctrine of obviousness-type double patenting as being obvious over claims 1 – 24 of copending Application No. 10/065,386. Claims 1 – 4 and 10 – 20 have been cancelled. New claims 21 – 30 have

been added. This rejection has been obviated by the Terminal Disclaimer filed herewith. Accordingly, withdrawal of this rejection and allowance of these claims are respectfully requested.

<u>The disclosure stands objected to for several informalities.</u>

The disclosure stands objected to as drawing numerals 36, 60, 216, and 236 are allegedly not found in the specification. Drawing numeral 36 can be found in the specification at, e.g., paragraph 0028, line 3, "a load 36" and elsewhere. Regarding drawing numeral 60, paragraph 0041 has been amended to add reference to line 60. Drawing numeral 216 can be found in the specification at, e.g., paragraph 0062, line 14, "block 216" and elsewhere. Regarding drawing numeral 236, paragraph 0028 has been amended to add reference to block 236. Also, the disclosure stands objected to as "buss" is misspelled. Paragraph 0035, line 10 has been amended to correct this spelling.

In view of the foregoing, reconsideration and withdrawal of this objection is respectfully requested.

New claims 21 - 30 have been added, whereby consideration and allowance thereof are respectfully requested.

It is believed that the foregoing remarks fully comply with the Office Action. Accordingly, as the cited references neither anticipate nor render obvious that which the applicant deems to be the invention, it is respectfully requested that claims 5 – 9 and 21 - 30 be passed to issue.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorney.

Respectfully submitted,

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